The Commonwealth of Massachusetts
Division of Marine Fisheries
251 Causeway Street, Suite 400, Boston, MA 02114
p: (617) 626-1520 | f: (617) 626-1509
www.mass.gov/marinefisheries

CHARLES D. BAKER
Governor

KARYN E. POLITO
Lt. Governor

KATHLEEN A. THEOHARIDES
Secretary

RONALD S. AMIDON
Commissioner

DANIEL J. MCKIERNAN
Director

January 20, 2022

Secretary Kathleen Theoharides
Executive Office of Energy and Environmental Affairs (EEA)
Attn: MEPA Office
Erin Flaherty, EEA No. 16507
100 Cambridge Street, Suite 900
Boston, MA 02114

Dear Secretary Theoharides:

The Division of Marine Fisheries (MA DMF) has reviewed the Environmental Notification Form (ENF) by Mayflower Wind Energy LLC for the Falmouth Connector Project, which is part of the larger "Clean Energy Resource" Project, located in the BOEM Lease Area OCS-A 0521 and federal and state waters offshore of the Commonwealth of Massachusetts. The overall Mayflower Wind Project includes an estimated 2,400 MW wind turbine array (up to 147 turbines), up to 5 offshore substation platforms, inter-array cables, and two separate offshore export cable corridors (ECCs) representing two separate connector projects in Commonwealth waters. The Falmouth Connector Project is the subject of the present ENF and will interconnect in Falmouth for delivery of up to 1,200 MW of energy from the Clean Energy Resource. The second connector project will be the subject of a subsequent ENF and will interconnect at Brayton Point in the Town of Somerset for delivery of up to 1,200 MW of energy from the Clean Energy Resource.

The Falmouth Connector Project represents the portion of the Clean Energy Resource that is within Massachusetts state waters. The ECC has a length of approximately 25.5 miles (mi; 41 kilometers [km]) and a width of up to 3,281 feet (ft; 1,000 meters [m]) in state waters. It would travel between Martha's Vineyard and Nantucket through Muskeget Channel, then continue north through Nantucket Sound to landfall in the Town of Falmouth. Two landfall locations remain under consideration: Worcester Avenue (Preferred Route) and Central Park (Noticed Alternative). The proposed ECC would contain one dedicated communications cable and up to 3 three-core high-voltage alternating current (HVAC) cables with nominal voltages of 200-345 kilovolts (kV) each.

Within the ECC, target burial depth is 6 ft (1.8 m) below level seabed and target cable separation is 328 ft (100 m). The range of acceptable burial depths is 3.2-13.1 ft (1-4 m). Approximately 611.93 acres (ac) of seafloor is estimated to be impacted by seabed preparation, cable burial, and

horizontal directional drilling (HDD) of exit pits at landfall. Approximately 611.23 ac of seafloor will be temporarily impacted by seafloor preparation and cable installation, 0.7 ac of seafloor will be temporarily impacted by HDD activity at up to four exit pits, and 44.6 ac of seafloor will be permanently occupied by offshore export cables following installation. In areas containing sand waves, dredging is anticipated to achieve adequate burial depth below stable seabed, resulting in estimated potential dredge volumes up to 646,077 cubic yards in state waters. The width of the base of the dredged area will be 46 ft (14 m) and the length of the dredged area is assumed to cover 3.84 mi of each of the offshore export cables.

Cable burial will not be feasible along an estimated 10 percent of the ECC. For areas where burial is not feasible, cable armoring may include a rock berm, concrete mattress placement, rock placement, fronded mattresses, and half shells. Offshore cable installation machinery may include one or more of the following: vertical injector, jetting sled, jetting remote operated vehicle (ROV), pre-cut plow, mechanical plow, and mechanical cutting ROV. Proposed dredging methods consist of trailing suction hopper dredge (TSHD), water injection dredge, or controlled flow excavation. Dredged material would be dispersed adjacent to the cable installation point or sidecast within or near the ECC on like substrate (sand waves). HDD will be used for the approximate 1 km (0.54 nautical mile [nm]) span between entry and exit pits.

Existing marine fisheries resources and potential project impacts are described in Attachment 1. The primary fish and invertebrate resources of concern in Nantucket Sound that are vulnerable to the adverse effects of cable laying and EMF include (but are not limited to) longfin squid (*Doryteuthis pealeii*), horseshoe crabs (*Limulus polyphemus*), whelks, skates, and juvenile black sea bass (*Centropristis striata*). Both commercial and recreational fisheries are active throughout the ECC area. MA DMF offers the following comments on content for consideration in developing the draft Environmental Impact Report (DEIR):

<u>MA DMF permits, approvals, and affected activities</u>

- Appendix D of the ENF states that the requirement of a Letter of Authorization and/or Scientific Permit will be determined based on consultation with MA DMF. Through the "Nantucket Sound exception" included within the Magnuson Act, MA DMF exerts fisheries jurisdiction across all waters within Nantucket Sound [1]. A Letter of Authorization from MA DMF will be needed for any activities that could result in the collection of fishing gear in Nantucket Sound and Massachusetts state waters. A Scientific Permit from MA DMF will be needed for any activities that could result in the collection of marine plants or animals in Nantucket Sound and Massachusetts state waters.
- The MA DMF bottom trawl survey operates throughout Nantucket Sound annually during spring and fall. Coordination with MA DMF is recommended to ensure lack of direct conflict with this survey during survey activities and cable installation.

<u>An up-to-date description of the Affected Environment</u>

- Dredging and cable trenching will likely impact existing marine resources that are vulnerable to cable installation activities (e.g., squid eggs, horseshoe crabs, whelks,

skates, juvenile black sea bass). These vulnerable species should receive particular attention in terms of documenting their distribution along the ECC as well as strategies for minimizing impacts to these resources. Many species trends have been affected due to warming waters, so characterization of these resources should be informed by up-to-date analyses of trawl survey data and other available data resources.

- Through the Massachusetts Ocean Management Plan, the Commonwealth established a standard substrate map. We would like to see that the data produced by this effort be compatible with that substrate map, since it underlies the interpretation of hard/complex seafloor. The maps shown in the ENF are useful and illustrative, but it is more helpful to have the data in an online viewer and available for viewing in our own GIS systems. Toward that end, substrate analyses from project survey work should be produced in the same Excel spreadsheet as the Commonwealth's substrate data and interpreted substrate units should be produced as an ArcGIS shapefile or geodatabase. All data should be provided digitally in formats compatible with ArcGIS to enable comparison with existing datasets. Acoustic mosaics should be provided as geotiffs at the maximum resolution possible. There should be at least four geotiffs provided: multibeam backscatter, sidescan sonar backscatter, multibeam bathymetry, and backscatter draped on bathymetry. The date of data collection should be easily discernable for all products.
- The DEIR should also include detailed descriptions of the existing benthic habitat. Surveys of sediment type and benthic invertebrates should be conducted and included in the DEIR to weigh the alternatives; benthic shear stress and bathymetry are also important variables when describing benthic habitats.
- The DEIR should use seafloor mapping methods that are up to date with interpretation methods being developed by NOAA and adaptable to the Coastal and Marine Ecological Classification Standard (CMECS).

<u>An expanded discussion of how scheduling, sequencing, and communication can be used to minimize impacts to fish and fisheries</u>

- Many potential impacts to marine resources and associated fisheries can be minimized by timing cable installation activities to avoid seasons of vulnerable life history phases [2] and/or concentrated fishing effort along the ECC. The DEIR should describe planned timing of cable-laying activities with regards to co-occurring marine resources and stakeholders.
- Potential prohibition or relocation of fishing (fixed or mobile gear) for any length of time as a result of survey, installation, or repair procedures should also be described. The size, length, and potential economic impact of closures should be included in the description.

<u>Description of overall economic impact to fishing industries</u>

- The DEIR should present an analysis describing the potential economic impact on Massachusetts fishing industries associated with the Clean Energy Resource and Falmouth Connector Project. The analysis should include impacts on individual ports, as well.
- Economic analyses should rely on the most up-to-date methods and datasets developed through the Mass CEC pilot studies projects and/or NOAA analyses.
- Providing a range of potential impacts, including a no-fishing alternative, is needed.
- A clear explanation of how the proponent is working toward mitigation agreements and how it is supporting regional impact monitoring is needed.

An expanded discussion of cable burial and covering

- The ECC intersects several areas of hard/complex seafloor and eelgrass beds mapped in the Massachusetts Ocean Management Plan. The DEIR should provide additional detail on plans to microsite submarine export cables to avoid these sensitive benthic resources to the maximum extent practicable within the ECC.
- Table 1.1 of the ENF lists an offshore export cable target burial depth of 6 ft (1.8 m) and an acceptable burial range of 3.2 – 13.1 ft (1 – 4 m) beneath stable seabed. The DEIR should include a Cable Risk Burial Assessment to provide risk estimates for a range of burial depths and to clarify the expected depth of lowering at each point along the cable route [3,4].
- The ENF also describes an allowance for secondary cable protection assumed over 10 percent of the offshore cable route length and at anticipated cable crossings; armoring materials may include a rock berm, concrete mattress, loose rock, fronded mattresses, half shells, and potential scour protection. Anticipated areas requiring covering should be described in greater detail, both in terms of the spatial distribution and existing habitat characteristics. The DEIR should also describe the likelihood of cable armoring affecting fishing activities. Information related to the habitat equivalency of rock berm, concrete mattress placement, rock placement, fronded mattresses, and half shells should be provided and should cite relevant literature.

A detailed discussion of HDD methods proposed for offshore cables

- MA DMF recommends that the proponent develop a comprehensive contingency plan in the DEIR outlining response protocols for a frac out event for the horizontal directional drilling (HDD) alternative for nearshore installation. Plans should include how frac outs will be avoided, as well as actual response and containment plans.

Presentation of monitoring plans

- Many impacts are described as temporary, but monitoring is needed to confirm that they are (for example, impacts on seafloor topography/bathymetry and sediment type). The DEIR should present the proposed monitoring plans.
- Monitoring plans should be developed with input from the Agencies and should include annual reporting.
- Monitoring plans should consider potential impacts of closely co-occurring cables from other projects on any control areas targeted for comparisons with the Mayflower Wind cable route.
- All monitoring plans should clearly identify the questions being addressed (i.e., the objectives of the monitoring plan).

Electric and magnetic fields (EMF) and cable burial

- Since cable burial will be relied upon to minimize adverse effects associated with EMF transmission, the EMF analysis should include a thorough description of how cable burial will be monitored on a regular basis to ensure the entire length of the cable will remain buried.

- Given the ECC's proximity to permitted transmission cables for other regional renewable energy initiatives and the likelihood that future transmission cables will be permitted in Muskeget Channel and Nantucket Sound, the DEIR should include a desktop modeling assessment of cumulative EMF impacts to sensitive marine taxa and describe post-installation survey plans to groundtruth this assessment.

Questions regarding this review may be directed to John Logan and Simonetta Harrison in our New Bedford office at john.logan@mass.gov and simonetta.harrison@mass.gov.

Sincerely,

Daniel J. McKiernan

Director

cc: Falmouth Conservation Commission
Edgartown Conservation Commission
Oak Bluffs Conservation Commission
Tisbury Conservation Commission
Nantucket Conservation Commission
Tom Keough, AECOM
Todd Callaghan, Robert Boeri, Steve McKenna, Lisa Berry Engler, MA CZM
Amy Hoenig, Eve Schluter, DFW
Sue Tuxbury, Kaitlyn Shaw, Alison Verkade, NMFS
David Wong, David Hill, David Johnston, Mille Garcia-Serrano, MA DEP
Ed Reiner, Tim Timmerman, EPA
Tori LaBate, MA DFG
Tracy Pugh, Steve Wilcox, Derek Perry, Erin Burke, Robert Glenn, Tom Shields, Kelly Whitmore, Melanie Griffin, John Logan, Simi Harrison, Emma Gallagher, Keri Goncalves, MA DMF

References

1. Bennett T. 2013 Navigating complex state and federal fisheries jurisdictions. Sea Grant Fellows Publications. Paper 65. http://docs.rwu.edu/law_ma_seagrant/65.
2. Evans NT, Leschen AS. 2010 Technical guidelines for the delineation, restoration, and monitoring of eelgrass (*Zostera marina*) in Massachusetts coastal waters. Massachusetts Division of Marine Fisheries Technical Report TR-43. http://www.mass.gov/eea/docs/dfg/dmf/publications/tr-43.pdf.
3. Sharples, PE. 2011. Offshore Electrical Cable Burial for Wind Farms: State of the Art, Standards and Guidance & Acceptable Burial Depths, Separation Distances and Sand Wave Effect. Project No. 671 prepared for the Bureau of Ocean Energy Management pursuant to Contract No. M10PC00102. https://www.bsee.gov/sites/bsee.gov/files/tap-

technical-assessment-program/final-report-offshore-electrical-cable-burial-for-wind-farms.pdf.
4. Carbon Trust. 2015. Cable Burial Risk Assessment Methodology: Guidance for the Preparation of Cable Burial Depth of Lowering Specification. Project No. CTC835. https://prod-drupal-files.storage.googleapis.com/documents/resource/public/cable-burial-risk-assessment-guidance.pdf.

DM/SH/JL/sd

Attachment 1: Description of the Affected Environment, Nantucket Sound

The waters within Nantucket Sound and adjacent state waters along the proposed export cable corridor (ECC) traverse a variety of benthic substrate types, including special, sensitive, and unique (SSU) habitat designated as hard/complex seafloor by the 2021 Draft Massachusetts Ocean Plan (Draft Ocean Plan) [1,2]. This hard/complex designation includes hard seafloor, complex seafloor, artificial and biogenic reefs, wrecks, and obstructions (Figure 1). Based on CZM survey data, hard/complex seafloor offers the greatest percentage of seafloor where attached fauna and flora occur in state waters, including important secondary habitat such as kelp (89%) and mussels (88%) [1,2].

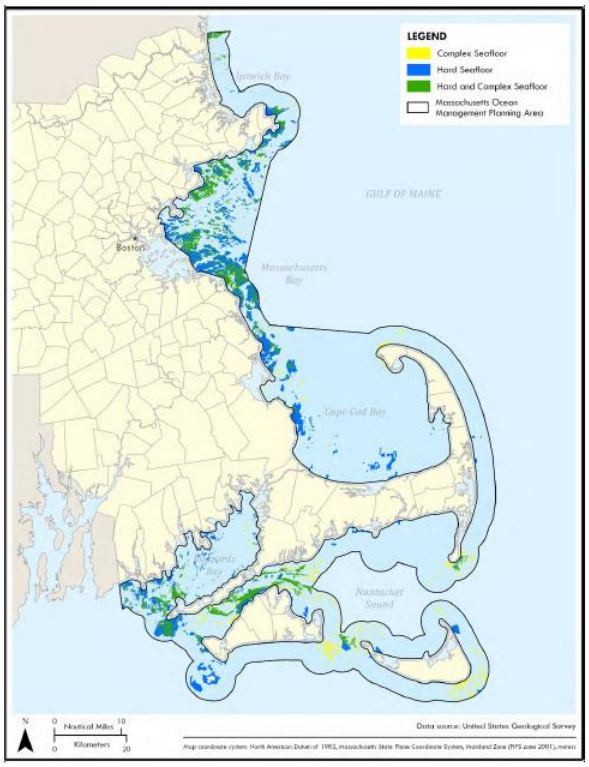

Figure 1. Hard/complex seafloor in the ocean management planning area [2].

The ECC also intersects habitat for a variety of recreationally and commercially valuable shellfish. In offshore waters between Martha's Vineyard and Nantucket, the ECC intersects mapped surf clam (*Spisula solidissima*) habitat. As it extends north, the ECC intersects blue mussel (*Mytilus edulis*), northern quahog (*Mya arenaria*), and bay scallop (*Agropecten irradians*) habitat. Subtidal waters within the ECC have habitat characteristics suitable for these species. Land containing shellfish is deemed significant to the interest of the Wetland Protections Act (310 CMR 10.34) and the protection of marine fisheries.

The 2021 Ocean Plan identified areas of important fish resources in state waters based on MA DMF trawl survey data spanning 1978 to 2018 (Figure 2) and categorized species identified in trawl surveys by vulnerability to coastal construction activities [1,3]. Habitats and taxa deemed

vulnerable to cable laying activities include closed areas/fishing protected areas, sessile and slow-moving species, spawning aggregations, and species sensitive to electromagnetic fields (EMF). Based on these criteria, taxa determined to be vulnerable to cable laying activities include scallops, surf clams, ocean quahogs (*Arctica islandica*), spawning and young-of-year (YOY) cod (*Gadus morhua*), channeled whelk (*Busycotypus canaliculatus*), spiny dogfish (*Squalus acanthias*), spawning and juvenile black sea bass (*Centropristis striata*), lobster (*Homarus americanus*), skates, and flatfish. Of these taxa, those most vulnerable to cable laying activities in the ECC are whelks, juvenile black sea bass, and skates due to their life history characteristics, high commercial and recreational value, and widespread distribution in Nantucket Sound (Figure 2).

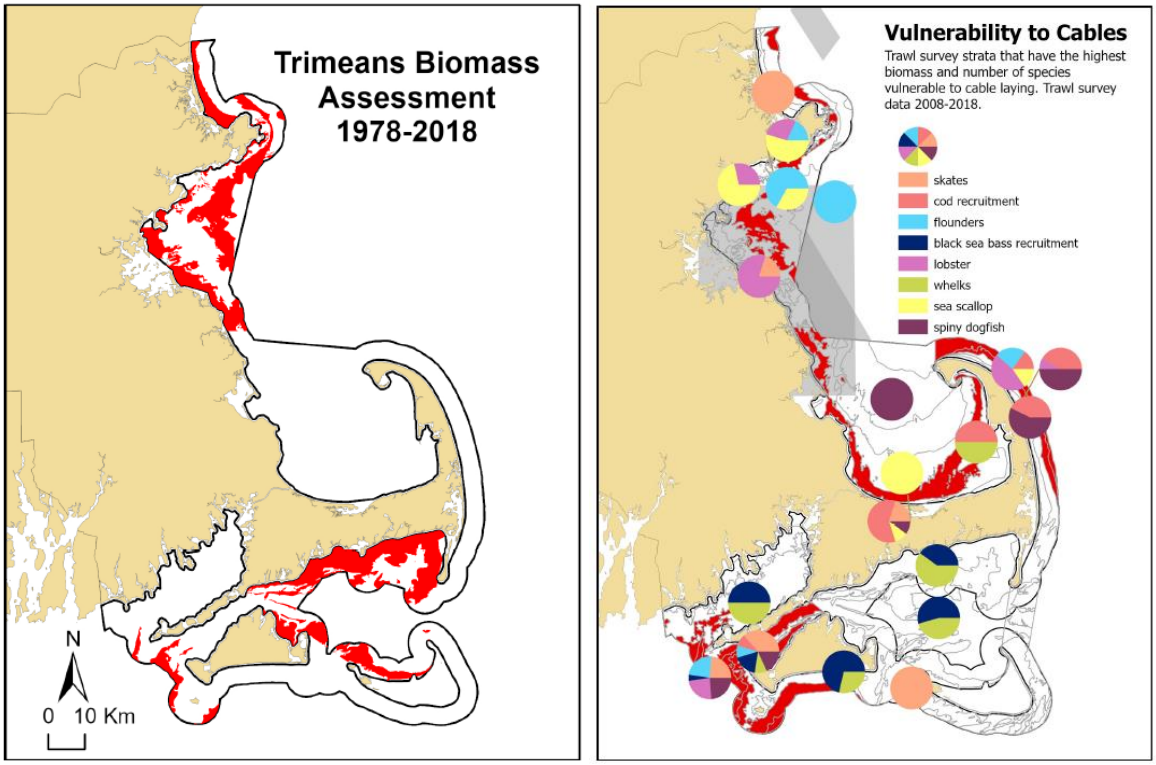

Figure 2. (Left) Important Fish Resource Areas from 1978-2018 based on highest 25% of trimean biomass values. (Right) Species vulnerability map for cables [3].

The various finfish and invertebrate resources along the cable corridors support a variety of associated fisheries. The 2021 Ocean Plan [1, 3] identified several areas of medium and high commercial fisheries activity and concentrated recreational fishing activity within the proposed cable route. Nantucket Sound waters within and adjacent to the proposed cable route are also classified as areas of high recreational boating density. According to the most recent National Marine Fisheries Service (NMFS) Stock Status Update, black sea bass, little skate, and winter skate stocks are not currently overfished or subject to overfishing [4]. However, the most recent whelk stock assessment indicates that the whelk stock in Nantucket Sound is overfished and subject to overfishing [5]. The biomass index based on the MA DMF trawl survey has declined by over 70% since the early 1980s. The commercial whelk fishery targets both channeled and

knobbed whelk and is an important state-waters only fishery in Massachusetts that has expanded in recent years due to declines in southern New England lobster resources and increased whelk prices [5]. The channeled whelk fishery is of particular economic importance and annually ranks among the top fifteen in terms of ex-vessel value landings in Massachusetts. Based on dealer reports, nearly two million pounds of channeled whelk were landed in 2016 with an estimated value of $4.8 million USD. Most of these landings are derived from fisheries in Nantucket Sound (Figures 3 and 4).

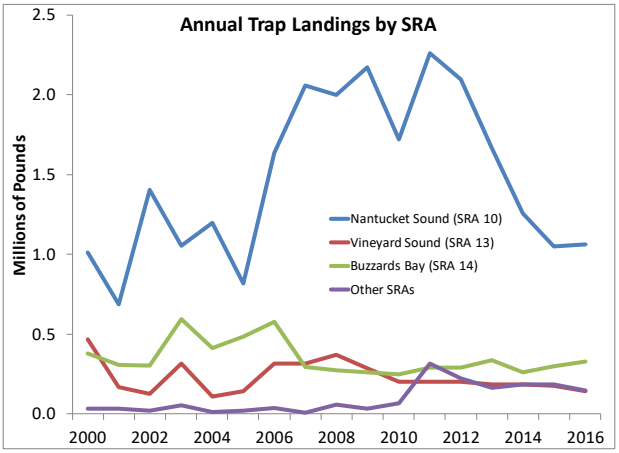

Figure 3. Massachusetts channeled whelk landings spanning 2000 – 2016 [5].

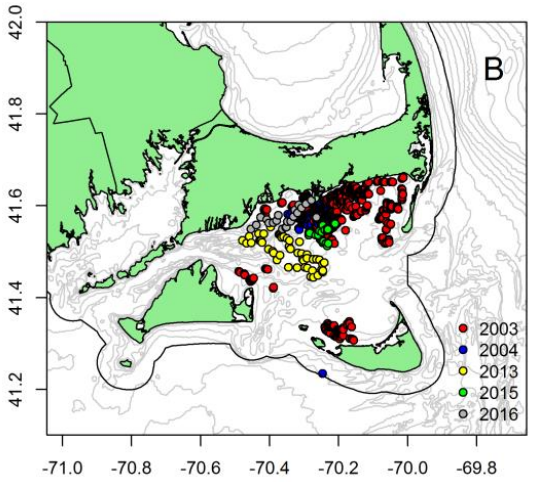

Figure 4. Locations of yearly commercial sampling effort in the Massachusetts whelk fishery [5].

Waters within Nantucket Sound also provide habitat for a variety of protected whale and sea turtle species, including humpback whale (*Megaptera novaeangliae*), fin whale (*Balaenoptera physalus*), leatherback turtle (*Dermochelys coraicea*), loggerhead turtle (*Caretta caretta*), Kemp's ridley turtle (*Lepidochelys kempii*), and occasionally green turtle (*Chelonia mydas*). An area of North Atlantic right whale (*Eubalaena glacialis*) core habitat is present south of Martha's Vineyard in close proximity to the proposed cable corridor (Figure 4) [1,6].

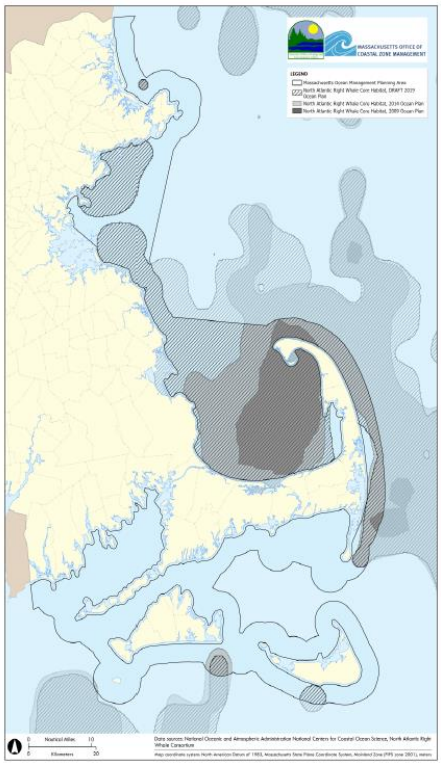

Figure 4. North Atlantic Right Whale core habitat [6].

Nearshore waters off the proposed Falmouth landfall provide habitat for a variety of marine flora and fauna. The shoreline east of the proposed landfall site is mapped as horseshoe crab (*Limulus polyphemus*) nesting habitat. Horseshoe crabs deposit their eggs in the upper intertidal regions of sandy beaches from late spring to early summer during moon high tides. Eggs hatch approximately two to four weeks later. The ASMFC 2019 benchmark stock assessment indicates that the New England horseshoe crab stock status has shifted from poor to neutral [7] and the Massachusetts 2020 Compliance Report to the ASMFC indicates that horseshoe crab trends have been increasing in this area [8]. Continued efforts should be made to protect the species and facilitate further stock improvement. The waters intersecting the ECC along the eastern shore of Martha's Vineyard and offshore of the proposed Falmouth landfall have been mapped previously by the Massachusetts Department of Environmental Protection (MA DEP) as eelgrass (*Zostera marina*) meadows (Figure 5). In-water surveys conducted in 2020 by Mayflower Wind identified mapped eelgrass extending as far as 3,100 ft (945 m) from shore. Eelgrass beds provide one of the most productive habitats for numerous marine species [9,10] and are designated "special aquatic sites" under the Federal Clean Water Act 404(b) (1) guidelines. Every effort should be made to avoid impacts to eelgrass.

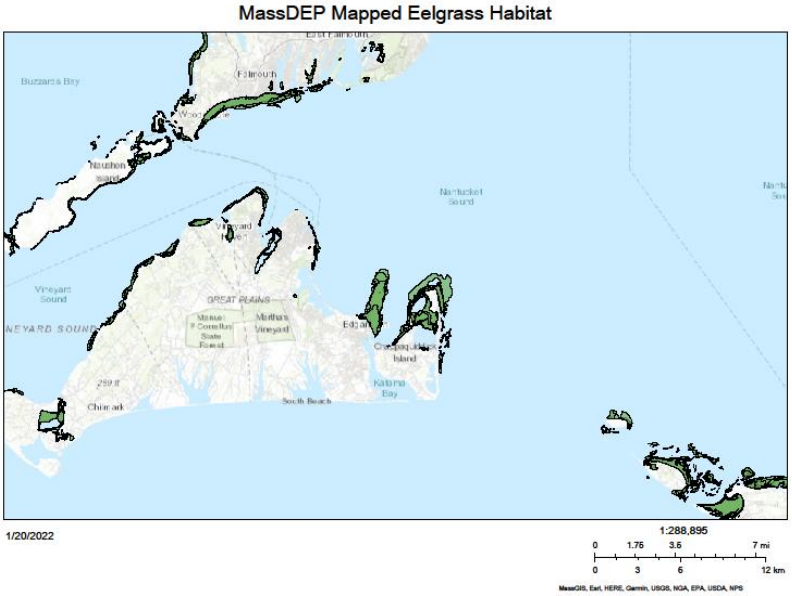

Figure 5. Mapped eelgrass (*Zostera marina*) meadow distributions based on MassDEP aerial surveys.

References

1. MA CZM (Massachusetts Office of Coastal Zone Management). 2021. *Draft 2021 Massachusetts Ocean Management Plan. Volume 2: Baseline Assessment and Science Framework.* https://www.mass.gov/files/documents/2021/09/22/2021-draft-ocean-mgt-plan-v2-ba-sf.pdf.
2. Boeri, R. et al. 2020. *Sediment and Geology – Workgroup Report. 2020 Massachusetts Ocean Management Plan Review.* https://www.mass.gov/files/documents/2021/01/27/sediment-geology-wg-2021.pdf.
3. Ford, K. et al. 2020. *Fisheries Work Group report. 2020 Massachusetts Ocean Management Plan Review*. https://www.mass.gov/files/documents/2021/01/27/fisheries-wg-2021_0.pdf.
4. NOAA Fisheries (National Marine Fisheries Service). 2021. *National Marine Fisheries Service – 3rd Quarter 2021 Update: Table A. Summary of Stock Status for FSSI Stocks*. https://media.fisheries.noaa.gov/2021-10/Q3%202021%20FSSI%20and%20nonFSSI%20Stock%20Status%20Tables.pdf.
5. Nelson, G.A., S.H. Wilcox, R. Glenn, and T.L. Pugh. 2018. *A stock assessment of channeled whelk (Busycotypus canaliculatus) in Nantucket Sound, Massachusetts*. Massachusetts Division of Marine Fisheries Technical Report TR-66. https://www.mass.gov/doc/marine-fisheries-technical-report-66/download.
6. Callaghan, T. et al. 2020. *Habitat Work Group Report. In Support of the Massachusetts Ocean Management Plan.* https://www.mass.gov/files/documents/2021/01/27/habitat-wg-2021.pdf.

7. ASMFC (Atlantic States Marine Fisheries Commission). 2019. *2019 Horseshoe Crab Benchmark Stock Assessment and Peer Review Report*. Prepared by the ASMFC Horseshoe Crab Stock Assessment Review Panel pursuant to NOAA Award No. NA15NMF4740069. http://www.asmfc.org/uploads/file/5cd5d6f1HSCAssessment_PeerReviewReport_May2019.pdf.
8. Perry, D. 2020. *Massachusetts 2020 Compliance Report to the Atlantic States Marine Fisheries Commission – Horseshoe Crab*. Submitted by the Massachusetts Division of Marine Fisheries.
9. Heck KL, Jr., Carruthers TJB, Duarte CM, Hughes AR, Kendrick G, et al. 2008. "Trophic transfers from seagrass meadows subsidize diverse marine and terrestrial consumers." *Ecosystems* 11: 1198-1210.
10. Jackson EL, Rowden AA, Attrill MJ, Bossey SJ, Jones MB. 2001. The importance of seagrass beds as a habitat for fishery species. *Oceanography and Marine Biology: An Annual Review* 39: 269-303.